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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/728,783	12/08/2003	Kia Silverbrook	MTB09US	1040

24011 7590 04/26/2007

SILVERBROOK RESEARCH PTY LTD
393 DARLING STREET
BALMAIN, 2041
AUSTRALIA

EXAMINER	
HSIEH, SHIH WEN	
ART UNIT	**PAPER NUMBER**
2861	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/26/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/728,783	SILVERBROOK, KIA	
	Examiner	Art Unit	
	shih-wen hsieh	2861	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 April 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-32* is/are pending in the application.

4a) Of the above claim(s) *17-24* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8 and 25-32* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *08 December 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *4-20-07*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Response to Amendment

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 5-8, 25, 29-32 are rejected under 35 U.S.C. 102(b) as being anticipated by Silverbrook (US Pat. No. 5,815,173).

In regard to:

Claim 1:

Silverbrook teaches in his fig. 4 (shown below):

FIG. 4B

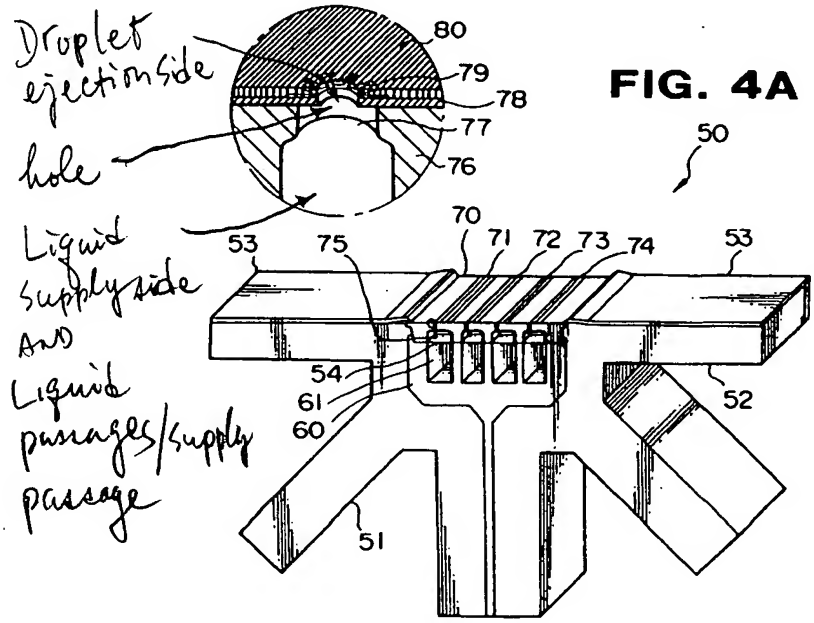

FIG. 4A

An inkjet print head (50) comprising: a monolithic wafer (76) having a droplet ejection side (refer to fig. above) and a liquid supply side (refer to fig. above); a plurality of nozzles (77); droplet ejection actuators (79, heater element) and associated drive circuitry (drive circuitry is inherently associated with the heater elements in a bubble jet printer) corresponding to each nozzle respectively, the nozzles, ejection actuators and associated drive circuitry being formed on the droplet ejection side; and a plurality of liquid passages (see fig. above) extending from the droplet ejection side to the liquid supply side for supply each of the nozzles with liquid; wherein, each of the liquid passages is formed by a hole (see fig. above) extending from the droplet ejection side partially through the monolithic wafer and a supply passage (see fig. above) extending from the liquid supply side partially through the monolithic wafer such that a fluid connection is established with the hole, the supply passage being wider than the hole, refer to col. 3, line 63 to col. 4, line 28.

Claim 5:

Silverbrook further teaches:

wherein the droplet ejection actuators are gas bubble generating heater elements, refer to col. 3, line 63 to col. 4, line 28.

Claim 6:

Silverbrook further teach:

a plurality of nozzle chambers (see fig. above), each nozzle chamber corresponding to a respective nozzle; wherein at least one the of the gas bubble generating heater elements are disposed in each of the nozzle chambers respectively;

such that, a bubble forming liquid can be supplied to the nozzle chamber for thermal contact with at least one of the bubble generating heater elements so that a bubble of the bubble forming liquid generated by one of the heater elements causes a droplet of the ejectable liquid to be ejected from the nozzle, refer to col. 1, lines 36-43 and fig. 2. Please note: the quoted figure and column and lines are prior art. However, jetting a ejectable liquid in a bubble jet printer is based on this principle. This principle is also applied to the instant application.

Claim 7:

An inkjet printhead according to claim 6 wherein the bubble forming liquid is the same as the ejected liquid.

Rejection:

This claim is rejected on the basis as set forth for claim 6 discussed above.

Claim 8:

Silverbrook further teaches:

wherein the printhead is a pagewidth print head, refer to col. 4, lines 8-12.

Claim 25:

A printer system incorporating an inkjet printhead comprising:

a plurality of nozzles;

a plurality of liquid passages leading to each nozzle respectively for providing ejectable liquid to the associated nozzle;

droplet ejection actuators and associated drive circuitry corresponding to each nozzle respectively, the nozzles, ejection actuators, associated drive circuitry and liquid

passage being formed on and through a monolithic wafer using lithographically masked etching techniques; wherein,

the monolithic wafer has a droplet ejection side and a liquid supply side; such that, each of the liquid passages is formed by ion etching a hole partially through the monolithic wafer from the droplet ejection side, and etching a passage from the liquid supply side of the monolithic wafer to the hole; wherein, the width of the supply passage exceeds the width of the hole by an amount that will ensure that a fluid connection is established with the hole, having regard to the tolerances of the etching process.

Rejection:

Recitations of this claim are the same as those in claim 1 and is rejected on the basis as set forth for claim1 discussed above. As to the lithographically masked etching techniques used in this claim, since such a techniques are well known in the art, and an apparatus claim is mainly structurally oriented. Or, a main concern to an apparatus claim is to its structure to find out whether its structures are distinct from the prior structures. Therefore, using lithographically masked etching techniques will not constitute a different structure from prior art, and therefore, Silverbrook's reference still read on claim 25.

Claims 29-32:

Recitations of each of these claims are the same as those in claims 5-8 respectively, and are rejected on the basis as set forth for claims 5-8 discussed above.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 2-4 and 26-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Silverbrook.

In regard to:

Claim 2:

The device of silverbrook DIFFERS from claim 2 in that it does not teach:

wherein the width of the hole is between 8 microns and 24 microns.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to design a range for the width of the hole, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art, refer to MPEP 2144.05 II A.

Claim 3:

An inkjet printhead according to claim 1 wherein the width of the supply passage is between 10 microns and 28 microns.

Rejection:

This claim is related to the range of the supply passage, and is rejected on the basis as set forth for claim 2 discussed above.

Claim 4:

The actuators used in Silverbrook's invention are heater elements. Therefore, the device of Silverbrook DIFFERS from claim 4 in that it does not teach:

wherein the droplet ejection actuators are thermal bend actuators.

Thermal bend actuator is a type of actuator other than thermal bubble and piezoelectric. The thermal bend actuator is also used in some ink jet printers to eject ink out of the nozzles in the form of an ink droplet, and is a well known type of actuator, refer to MPEP 2144.03, In re Malcolm, 129 F.2d 529, 54 USPQ 235 (CCPA 1942).

Therefore, it would have been an obvious matter to select a type of actuator, such as a heater element, or piezoelectric or a thermal bend actuator as the actuator of the ink jet printer, since all of these actuator will have the same function of eject the ink in a form of ink droplet once a driving signal is applied to the actuator.

Claims 26-28:

Recitations of each of these claims are the same as those in claims 5-8 respectively, and are rejected on the basis as set forth for claims 5-8 discussed above.

Response to Arguments

5. Applicant's arguments with respect to claims 1-32 have been considered but are moot in view of the new ground(s) of rejection.

An up-to-date search a reference US 5,815,173 is found and was used in this office action. Examiner believes the configuration of fig. 4 read on the instant application.

6. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to shih-wen hsieh whose telephone number is 571-272-2256. The examiner can normally be reached on 9/5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Luu can be reached on 571-272-7663. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SHIH-WEN HSIEH
PRIMARY EXAMINER

SWH
April 25, 2007